AEDES TOGOI COMES ABOARD

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ABSTRACT. *Aedes togoi* were noted as a biting nuisance on board a sailing boat anchored offshore between Vancouver Island and the Canadian mainland at the extreme north of Georgia Strait. This is the most northerly of 14 localities now known for this species in the Pacific northwest. Its distribution is mapped and briefly discussed.

First collected in Osaka, Japan, in the early 1900s, *Aedes togoi* (Theobald) was identified in North America in the late 1960s from larvae collected by R. Ring at Cordova Bay, Vancouver Island. Larvae of *Ae. togoi* develop in rock pools just above the tidal zone on the west coast of North America, but its range extends westward and southward to tropical Indomalaysia. There have been no genetic studies to investigate the geographic origins and relationships of the various populations found over this enormous range.

In North America, females bite humans on beaches near larval habitats from at least June till October but both Belton (1980) and Trimble and Wellington (1979) conclude that it does not fly far inland. So far its immature stages have not been found in artificial containers away from the shore, and there are no records of complaints from residential areas inland from well populated rock pools. Little else is known about its biology here. In Japan, females have flown to villages at least 1 km inland from coastal rock pools (Wada et al. 1975).

Wood et al. (1979) suggest that the species "was probably introduced into western Canada from Japan"; and if this is so, one would expect to find records of it from ocean-going vessels. Bohart (1956) refers to an adult female collected aboard a ship between Iwo and Agrihan, two of the Bonin Islands. We provide evidence that in North America *Ae. togoi* flies readily over tidewater to an anchored boat.

One of us (O.C.B.) noticed mosquitoes biting actively between 1900 and 2100 h in late August 1989 aboard a 10-m sloop anchored 15–20 m off a rocky shoreline near Squirrel Cove on Cortes Island in Desolation Sound, at the extreme north of Georgia Strait. Three female aedine mosquitoes were collected while attempting to bite and, although they were somewhat rubbed, were identified from their dark scaled proboscises and white ringed palpi as *Ae. togoi.*

Adults may stay on ocean-going vessels if they find suitable oviposition sites or they may visit them when ready to oviposit, and indeed larvae of *Ae. togoi* have been found in ships' bilges in Japan (Hsaio and Bohart 1946).

Other mosquito species such as *Ae. aegypti* (Linn.), *Culex pipiens* Linn. and *Cx. quinquefasciatus* Say owe their worldwide distribution to transportation by ship; and because it can develop in sea water, *Ae. togoi* could be as well as or better adapted for ocean travel as these species.

The record from Desolation Sound, about 10 km north of the 50th parallel, is the most northerly in America and brings the number of locations from which the senior author has examined *Ae. togoi* to 14. These are shown in Fig. 1,

Table 1. Distribution of *Aedes togoi* in North America.

Locality	Collector	Year
1. Rosario Beach, Fidalgo Is., WA	O. C. Belton	1980
2. Cordova Bay, Vancouver Is., BC	R. Ring	1969
3. D'Arcy Is., BC	B. I. Gillespie	1985
4. Rock Bay, San Juan Is., WA	D. Larson	1981
5. S. Pender Is., BC	J. S. Barlow	1978
6. Pender Is., BC	G. Duckett	1984
7. Point Atkinson, BC	Wood, Dang, Ellis	1979
8. Horseshoe Bay, BC	C. D. Garrett	1940?
	R. M. Trimble	1977
9. Britannia Beach, BC	P. Belton	1977
10. Roberts Creek, BC	G. Lowan	1979
11. Irvines Landing, BC	P. Belton	1978
12. Earls Cove, BC	P. Belton	1978
13. Mitlenatch Is., BC	N. Verbeek	1981
14. Squirrel Cove, Cortes Is., BC	O. C. Belton	1989

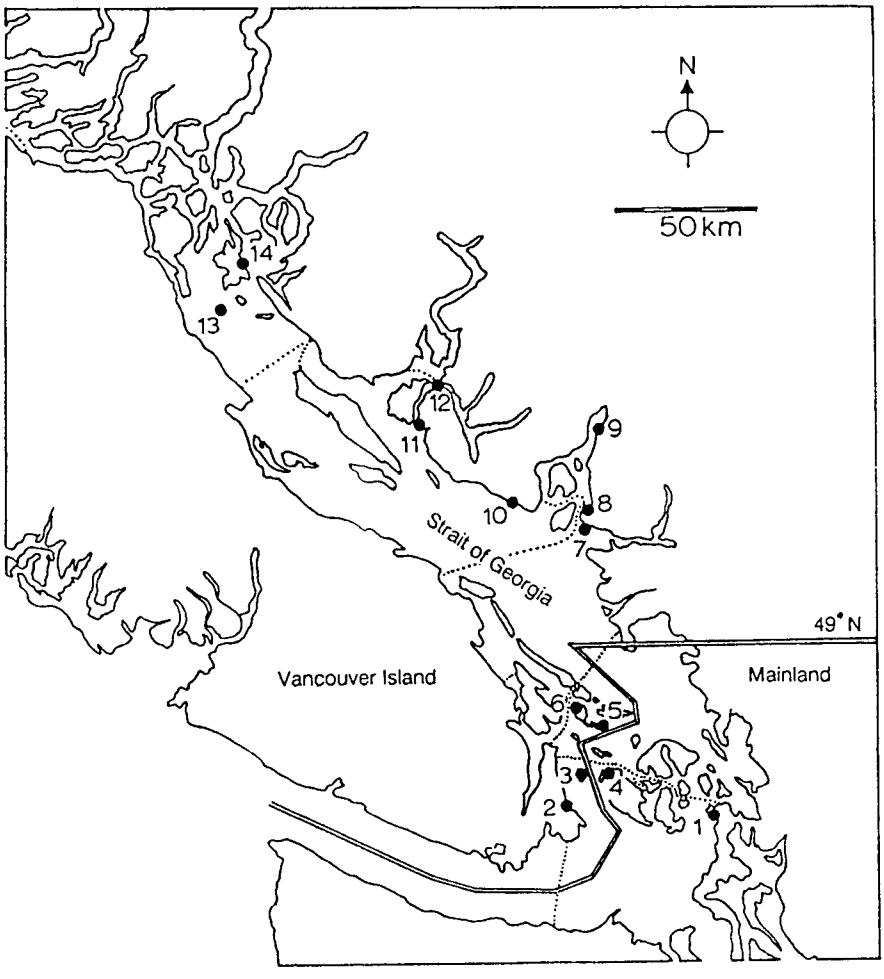

Fig. 1. Distribution of *Aedes togoi* in the Pacific northwest: 1–14 localities from which specimens have been examined. See Table 1 for names. Double lines, Canadian and United States border. Dotted lines, major ferry routes.

and the numbers are given in Table 1 with name of collector and date where this is known. The species is apparently well established along a 200-km stretch of coast on Georgia, Haro and Rosario Straits. It was probably transported over some of this range by boat.

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